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ABSTRACT

This paper describes the development and validation of a school-accountability model. The model is based on the assumption that schools represent dynamic systems in which a change in one element will affect all other elements. The model's primary elements are educational input, processes, and outcomes. The paper examines various accountability models and concludes that although these models vary in complexity and purpose, their one common element is a reporting system. The model described in this report was created to correct the defects in other models. The first step in its development was to identify the educational inputs, processes, and outcomes of the school. The model provides for the external judgment of a school and its programs based on known standards; supplies information to school personnel and parents for diagnostic/remedial efforts focused on improvement; offers an opportunity for the school to communicate its goals and achievement to parents and the public; is culturally fair; and is systemic in nature. Future models will be customized for each school, and a School Accountability Profile will provide a basis for judging past accomplishments and for planning future improvements. The model is currently being pilot tested in two of the three largest school districts in Alabama. (RJM)

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A SCHOOL ACCOUNTABILITY MODEL

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Abstract

The purpose of this paper is to describe the development and validation of a school accountability model. A common definition of "accountability" is that someone or some entity is held responsible for the performance of an organization. The educational accountability movement in this country has been driven primarily by government officials. Often, both the methods and criteria used to hold schools accountable are the result of legislation or school board actions based on political considerations rather than sound education. It is our belief that a school accountability model should have at least five characteristics. It should provide for the external judgment of a school and its programs based on known standards (preferably, world class), provide information to school personnel and parents for improvement, provide an opportunity for the school to communicate its goals and achievements to parents and the public, respect diversity, and treat the school as a dynamic system. At best, most accountability systems accomplish only the first characteristic.

The school accountability model proposed in this study is based on the assumption that schools represents dynamic systems, a change in one element will impact all other elements. The primary elements of the model are educational inputs, processes, and outcomes. The model is driven by the school's goals or desired outcomes. The first task was identifying the indicators for these three elements.

The model is being piloted in two of the three largest school systems in the state. The data will be analyzed using structural equation modeling. Structural equation modeling provides for a test of the fit of the data to the preconceived model and produces probabilities for associations among elements. The model provides input to school administrators and teachers as to impact of proposed changes.

A SCHOOL ACCOUNTABILITY MODEL

Accountability is one of the most frequently discussed issues concerning education in the popular press. Educational accountability, for the most part, has been taken out of the hands of educators and put into the hands of state legislators, lay school boards, and other politicians. The reason for this is debatable, but at least one explanation is that educators have defaulted on their obligation to provide credible evidence regarding the condition of education to the public. The purpose of this paper is to describe the development and validation of a school accountability model based on five principles. These are that such models should provide for the external judgment of a school and its programs based on known standards (preferably world class), provide information to school personnel and parents for improvement, provide an opportunity for the school to communicate its goals and achievements to parents and the public, respect diversity, and systemic in nature. Most current school accountability systems are based on only the first characteristic. The proposed model is designed to address these five principles.

A common definition of "*accountability*" is that someone or some entity is held responsible for the performance of an organization. To bring this definition into the context of education and the evaluation and assessment paradigm, we explain it this way. "*Measurement*" is the process of assigning numbers to individual students to represent their achievement. "*Assessment*" is the process of measuring an entire group of students such as a school or school system. " is adding value judgements to these measures. Finally, "*accountability*" places the assessment and evaluation information in the context of responsibility for the results. Therefore, accountability serves as the umbrella encompassing the other three activities in this hierarchy.

Background

The literature on accountability is extensive with much of it being of recent origin. Since this paper proposes a new accountability model, the review summarizes the literature concerning several accountability models and school reporting systems. This should provide the context in which the proposed model was developed.

Accountability Models

Two of the most sophisticated accountability models in the literature are based on a value-added approach. These are the Tennessee Value Added Assessment System (TVAAS) (Baker & Xu, 1995) and the Dallas "value added" system (Webster, Mendro, & Almaguer, 1994; Webster & Olsen, 1984).

The Tennessee Value Added Assessment System. One of the most sophisticated of the accountability models is the TVAAS. Originally proposed by McLean and Sanders (1984), Sanders has continued to develop and refine the model (e.g., Sanders, 1994; Sanders & Horn, 1994; Sanders & Stroup, 1991). The Tennessee Value-Added Assessment System uses longitudinal student achievement data and national norm data (in the form of Scale Scores) to generate mean gain scores for teachers, schools, and districts. The mixed model methodology allows the model to estimate the variance of teacher effects from the average all teachers and to

provide a "shrinkage" estimate to assure that any attribution of effect is not based on chance. This model uses the gains of all students which, it is assumed, controls for variables assumed to contribute to achievement such as socio-economic status, family status, and school setting (Baker & Xu, 1995; Snobgrass, 1995).

The Dallas "value added" model was developed in the 1980s under the direction of Webster (Webster & Olson, 1984). A 1994 study (Webster, Mendro, & Almaguer) expanded the earlier study (1984). However, unlike the previous study where the predicted achievement was based on two years of historical standardized achievement test data, this study used many variables to predict individual student achievement. The basic methodology employed was to create predicted scores and generate standardized residuals for each outcome and predictor variable for each student. These two sets of residuals were then used to generate mean achievement above or below expected for each grade/school. The outcome variables included 143 separate course related criterion-referenced tests, student promotion and graduation rates, student attendance rates, and percentage of students taking and average scores on the Scholastic Aptitude Test (SAT). The benefit of this methodology was the ability to investigate achievement independent of school identification.

North Carolina, Louisiana, Oregon, Florida, Georgia, and Colorado are among other states that have invested substantial energies in reforming their accountability systems in the past several years. North Carolina's system (North Carolina Department of Public Instruction, 1998) that uses an accountability approach that establishes growth expectations for each school (essentially a one year equivalent in growth) and then evaluates each school's progress toward the benchmark as evidence of accountability, may have the most to inform statistical modeling of any of the extant models. A similar system has been in proposed in Louisiana (Louisiana Department of Education, 1998). Louisiana's system includes academic and non-academic indicators (attendance and dropout information) in establishing growth targets and evaluating progress. Criterion-based improvement levels are established based on required 10-year performance standards.

Accountability Based on Reporting

Many accountability systems are based on providing information to the public to make its own decision. These approaches usually include some type of school report cards that provide information about student performance. In most instances, this information is about student performance on standardized tests and includes comparisons to national and/or state norms. On of the most well-known of these is the Kentucky system.

Previous Kentucky educational reform efforts gained national attention because of its systemic nature. The Kentucky reporting system is described in *Assessment and Accountability: Report from the Prichard Committee for Academic Excellence* (Task Force on Improving Kentucky Schools, 1995), a report that focuses on the Kentucky Instructional Results Information System (KIRIS). This system is primarily a reporting system to provide the results of the state's testing program and the progress of schools toward rewards or sanctions based on expected changes in student achievement. There is no "report card" other than the movement of

the school toward its goal. Kentucky has recently reformed its accountability system for a second time. The new system is called the "Commonwealth Accountability and Testing System" or CATS. CATS includes a reporting system and the use of norm-referenced and criterion-referenced assessments. The new system is intended to increase student accountability.

A report titled *School Accountability Report Cards: The Principal's Role* (Stephenson, 1989) described 13 accountability reporting procedures and school report cards. Another report by the Far West Regional Laboratory (Brown, 1990) described reporting systems, primarily for four western states. Both reports described the California School Accountability Reports. Accountability in Education.

According to Brown (1990), Nevada's Report Card included educational goals and objectives, comparison of achievement with previous years, pupil-teacher ratio by grade, teacher assignments compared with qualifications and licensure, total expenditures for each source of funding, curriculum used including special programs, attendance and advancement records and graduation rates, and efforts to increase communication with parents. In the same report, information in Utah's Annual School District Performance Reports included norm-referenced test data, ACT scores, fiscal information, attendance and dropout rates, course-taking patterns in high schools, professional data on teachers, and demographic figures on students. Arizona did not have a report card, per se, but did provide an accountability summary that discussed three areas--finance, program standards, and personnel.

California School Performance Reports were differentiated by level. For the high schools, the reports included academic course enrollments, attendance and dropout rates, assessment results, and ACT/SAT scores. In the elementary and intermediate schools, the report was limited to achievement and attendance data. The reports were also reported separately by gender and race. The law also requires the state superintendent to develop a Model School Accountability Report Card to include 13 school conditions. Some of these were student progress toward meeting reading, writing, arithmetic, and other academic goals; progress toward reducing dropout rates; estimated expenditures per student and types o services funded; progress toward reducing class sizes and teaching loads; quality and currency of textbooks and other instructional material; availability of qualified personnel to provide student support services; adequacy of school facilities; adequacy of teacher evaluations and professional improvement opportunities; classroom discipline and climate for learning; curriculum improvement programs; and quality of school instruction and leadership.

The standards, indicators of quality, data collection procedures, and instruments for the evaluation of Georgia public schools were discussed in a paper presented in 1991 (Tesh, 1991, April). The paper recommended that data elements be considered over time. Once the Georgia Comprehensive Evaluation System (CES) is fully implemented, each school was to be visited and reviewed every five years. This review considered the status of the many indicators across the years since the last site visit rather than limiting consideration to the outcomes of a single year. The outcome goals of education were improving student's school completion rate; preparing students for post-secondary school life (preparing students for continued education, preparing students for work, and preparing students for multiple life roles); and providing

students with school experiences appropriate to their ages, developmental levels and skill levels (educating elementary school students, educating middle school students, educating secondary school students, and increasing special education students' living skills and opportunities).

To address these goals the following indicators were to be collected and reported: Improving student's school completion rate (including drop out rate, graduation rate, initial pass rates on the Georgia basic skills test, minority initial pass rate on the Georgia basic skills test, and percent minority scoring in the lowest quartile on the ITBS/TAP); preparing students for post-secondary school life (including preparing students for continued education, the world of work, and multiple life roles); and providing students with school experiences appropriate to their ages, developmental levels and skill levels.

In addition, the system looks at the characteristics of effective schools and reports the following indicators: The autonomy of school-site management, the school principal's level of instructional leadership to the school, the stability of the school staff, parental involvement and support of the school, school promotion and school-wide recognition of academic achievement of students, organization of the school environment with respect to the maximization of learning time, the collegiality of relationships between and among teachers and administrators as it relates to collaborative planning, student and staff sense of belonging to a supportive community, school culture as it presents clear goals and high expectations for students, and the orderliness and safety of the school environment.

Since 1996, Georgia has released state, school and district report cards which include data on norm- and criterion-referenced assessments, Scholastic Assessment Test performance, data on attendance, drop-out, teacher characteristics, school characteristics, funding, and community characteristics. The expressed purposes of the reporting system are school improvement and informing the public about educational quality at local and state levels. School improvement grants are available. Georgia is in the process of developing a computerized criterion-referenced assessment system to measure student achievement on the proposed Quality Core Curriculum. Teachers will be able to use such tests periodically to students for diagnostic/remedial purposes.

San Diego Schools evaluated 10 "Leadership in Accountability Schools" in that district (Bennett, 1995, April). This model included four components of accountability; (1) standards, (2) related assessments, (3) recognition and intervention measures, and (4) public reporting practices. The issue of concern within this project was the public reporting practices. "Schools will fully and accurately report student achievement results in a public process that emphasizes progress achieved." Schools referenced a wide variety of evidence when reporting on their performance in reporting results, but validation reviewers indicated that most of the information was shared orally. Some schools used materials such as parent bulletins, newsletters, brochures, minutes from meetings, student handbooks, charts and lists of committees and governance groups. Top schools have well-defined, two-way systems of communication among stakeholders about student achievement and progress toward the school goals and expectations. The reporting is based on site-developed accountability systems. Therefore, this report does not

include elements for reporting, particularly elements that may be directly or indirectly related to the achievement levels reported to the public.

Summary

It is clear that, what are called accountability models, range from just reporting results to comparing actual achievement to predicted achievement. The models vary in their complexity and their purpose. The one common element in all of the accountability models is a reporting system. State-based accountability models also tend to apply sanctions for "academic" bankruptcy, financial incentives for reaching or exceeding expectations, and funds for improvement at school or district levels. This background was the basis for the development of the new school accountability model by the Center for Educational Accountability at the University of Alabama at Birmingham.

Existing accountability systems have primarily served functions of reporting to stakeholders, monitoring school and district performance on a common set of indicators across time, identifying and sanctioning schools and districts that are failing to meet expectations, and providing financial incentives for improvement or exemplary performance. These models have not however been diagnostic-remedial in their focus. That is, they have been moderately effective in identifying strong versus weak educational performance, but they have not focused on identifying those conditions, characteristics, or processes that are associated with differential performance between schools. Therefore, the stakeholders are left with an awareness of the schools' performance status or change but not data-based directions for improving school performance. This is a significant limitation. It is the difference between as status-focused accountability model and an improvement-focused model. We believe that there is a need for a paradigmatic shift to improvement-focused accountability modeling.

In order to generate improvement-focused accountability models there must be explicit recognition of the context within which school performance and school improvement occurs. We have adopted a simple systems perspective for our preliminary phase of model development. Such simple systems reflect the dynamic nature of schools and districts while allowing for simple longitudinal modeling of input-process-output cycles. By identifying the inputs and processes that are reliably related to differences in outputs AND can be manipulated we hope to provide recommendations for improving educational systems and documenting intended and unintended consequences of such interventions.

Describing the School Accountability Model

With the general accountability movement in mind, personnel at the Center for Educational Accountability at the University of Alabama at Birmingham designed a model to address the shortcomings of other models. First, a set of characteristics were developed. These are a school accountability model should:

1. provide for the external judgment of a school and its programs based on known standards (preferably, world class),

2. provide information to school personnel and parents for diagnostic/remedial efforts focused on improvement,

3. provide an opportunity for the school to communicate its goals and achievements to parents and the public,

4. be culturally fair in the sense that the model does not unduly penalize racial or gender groups, and

5. be systemic in nature.

Implementing such a system would allow schools to be held accountable for their performance while using the information to continually improve the learning of their students. Often, new programs are judged based on how the participants, instructors, or developers feel about them. Hard evidence of their effectiveness is seldom available and when it is, it often of poor quality. A systemic model would provide for the prediction of changes throughout the system when a new element is introduced.

The first step in development of the model was identifying the educational inputs, processes, and outcomes of the school. Ideally, this would be done by the school's teachers, administrators, and parents. For the purposes of our research, this was done by committees of teachers and school administrators, using the information from the Alabama School Report Cards as a starting point. Table 1 illustrates some of the elements in the model. Two ingredients that will impact the success of the model are the way in which the data are analyzed and the method by which the results are reported.

At this time, we anticipate that the data will be analyzed using structural equation modeling. Structural equation modeling is a statistical process that tests the fit of the data to a preconceived model and determines the odds ratios (probabilities) for moving from one element to another. Figure 1 illustrates the theoretical form of the model with only two variables associated with each component. In Figure 1, rectangular figures represent observable variables and oval figures represent latent variables, or theoretical variables that account for the information in one or more observable variables. Once a model is fitted and tested, it will permit school personnel to explore the impact of changes before they are implemented.

Information will be reported using a School Accountability Profile. The Profile will permit the school to share a broad picture of its accomplishments with parents and the community. The School Accountability Profile will also provide a basis of judging past accomplishments and planning future improvements. If it were produced annually, the impact of changes in the school could be judged based on empirical evidence.

Table 1
Example Inputs, Processes, and Outcomes in the Educational Process

INPUTS	PROCESSES	OUTCOMES
✔Financial (e.g., expenditures per average daily attendance; local, state, and federal revenue per average daily attendance) ✔Personnel (e.g., pupil teacher ratio, average teacher salary) ✔Facilities ✔Equipment ✔Materials ✔School Policy/Law ✔Student Attributes (e.g., predominant socio-economic level, average ability)	✔Curriculum & Instruction ✔Implementation of Policies (e.g., admission, grading, promotion, etc.) ✔Diverse Educational Opportunities ✔Parent Involvement ✔Leadership (planning, style, efficiency, etc.)	✔Academic achievement (e.g., SAT, exit exam, writing test) ✔Accomplishments (e.g., graduate rates, college attendance) ✔Attitudes ✔Retention/dropout rates ✔School safety ✔Discipline ✔College enrollment and completion rates

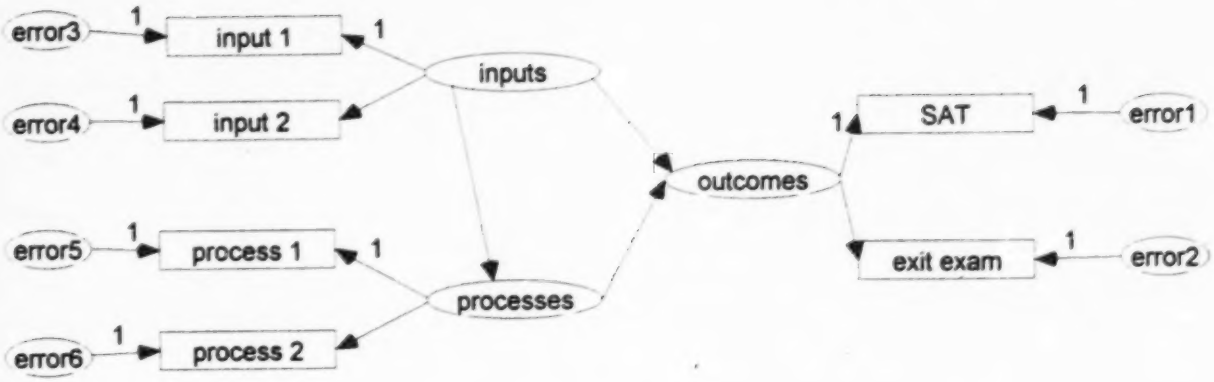

Figure 1: Illustrative School Accountability Model

The School Accountability Model is currently undergoing pilot testing in two of the three largest school systems in the state: Birmingham City Schools and Jefferson County Schools. Between these two school systems, there are schools representing almost every demographic in the state: from urban to rural, economically depressed to wealthy, and small to large. The database that forms the core of a data warehouse to run the system is developed, and data are being input from multiple sources. The bulk of the data are being obtained electronically from the Alabama State Department of Education. The reduces the time teachers and school administrators must spend gathering data and the time Center personnel must spend entering data. Other data are being obtained from the school systems' central office. Thus, very little data must be collected directly from the schools.

The School Accountability Profile, eventually, will include five years of data (see Appendix A). Since the current standardized tests used in Alabama (the Stanford Achievement Tests or SAT, 9th Edition) were first used in 1996, the first Profiles will have only data for three years.

References

Baker, A., & Xu, D. (1995). *The measure of education: A review of the Tennessee Value Added Assessment System.* (ERIC Document Reproduction Service No. ED 388 697).

Bennett, S. J. (1995, April). *Interim Report on the Implementation of Accountability at the Leadership in Accountability Demonstration Schools in the San Diego City Schools.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Brown, P. (1990). *Accountability in Education.* San Francisco, CA: Far West Laboratory for Education and Development.

Georgia Department of Education. (1998). *Georgia Department of Education Webpage.* Webpage can be accessed at <www.doe.k12.ga.us>.

Kentucky Department of Education. (1998). *Kentucky Department of Education Webpage.* Webpage can be accessed at <www.kde.state.ky.us>

Louisiana Department of Education. (1998). *Louisiana Department of Education Webpage.* Webpage can be accessed at <www.doe.state.la.us>.

McLean, R. A., & Sanders, W. L. (1984). *Objective component of teacher evaluation–A feasibility study* (Work Paper No. 199). Knoxville, TN: University of Tennessee.

North Carolina Department of Public Instruction. (1998). *North Carolina Department of Public Instruction Webpage.* Webpage can be accessed at <www.dpi.state.nc.us>.

Sanders, W. L. (1994). *Manual of TVAAS Seminar for Tennessee State Department of Education.* Nashville, TN. Tennessee State Department of Education.

Sanders, W. L., & Horn, S. (1994). The Tennessee Value-Added Assessment System (TVAAS): Mixed model methodology in educational assessment. *Journal of Personnel Evaluation in Education,* 8, 299-311.

Sanders, W., & Stroup, . (1991). A unified approach to mixed linear models. *The American Statistician.* 45, 54-64.

Stephenson, A. (1989). *School Accountability Report Cards: The Principal's Role.* Thrust.

Task Force on Improving Kentucky Schools. (1995). *Assessment and Accountability: Report from the Prichard Committee for Academic Excellence.*

Tesh, A. S. (1991, April). *A Research-Based Attribute Structure for School Accountability.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Webster, W. J., Mendro, R. L., & Almaguer, T. O. (1984). *Effectiveness Indices: A "Value Added" Approach to Measuring School Effect.*

Webster, W. J., & Olsen, G. H. (1984, April). *An Empirical Approach to Identifying Effective Schools.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

APPENDIX

SCHOOL ACCOUNTABILITY PROFILE

SCHOOL: *Allan Cott School*

SYSTEM: *Jefferson*

For School Year *1995-96*

Schedule

School Goals

Major Accomplishments

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School: *Allan Cott School*

Variable/Year	95-96	96-97	97-98	98-99	99-00
School					
School ID					
County or System					
County or System ID					
School Age					
Economics					
Reduced Lunches					
Free Lunches					
Per Capita Expenditures					
Portables					
Enrollment					
Total					
Ex-Ed					
Parent Teacher Association					
Parents					
Faculty					
Parent Teacher Conference					
Fall					
Students Represented					
Number of Parents					
Spring					
Students Represented					
Number of Parents					
Open House Attendance					
Library Circulation					
Faculty and Staff					
Phone Calls					
Absences					
Job Related					
Non-Job Related					
Staff Development					
Volunteerism					
Number					
Hours					
Awards					
Certificated Teachers					
Classified Staff					
Students					
Gender					
Males					
Females					
Ethnicity					
African-American					
Asian					
Caucasian					
Hispanic					
American Indian or Alaskan Native					

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School: *Allan Cott School*

Variable/Year	95-96	96-97	97-98	98-99	99-00
Enrollment by Grade					
k					
1					
2					
3					
4					
5					
Attendance by Grade					
k					
1					
2					
3					
4					
5					
Promotion Rate					
Close of School					
Summer School					
Retention Rate					
Close of School					
Summer School					
Ex-Ed					
Enrollment by Grade					
k					
1					
2					
3					
4					
5					
Attendance by Grade					
k					
1					
2					
3					
4					
5					
Promotion Rate					
Close of School					
Summer School					
Retention Rate					
Close of School					
Summer School					
Dropout Rate					
Discipline Events (occurances)					
Class 1					
Class 2					
Class 3					
In-school Suspension					
Out-of-school Suspension					
Assigned to Alternative School					
Out-of-school Expulsion					
Tardies					
Activities					

School: *Allan Cott School*

Variable/Year	95-96	96-97	97-98	98-99	99-00
Honor Roll					
First Grading Period					
Second Grading Period					
Third Grading Period					
Fourth Grading Period					
Grade 5 Writing					
Narrative					
Level 1					
Level 2					
Level 3					
Level 4					
Descriptive					
Level 1					
Level 2					
Level 3					
Level 4					
Expository					
Level 1					
Level 2					
Level 3					
Level 4					
Stanford Achievement Test by Grade					
Grade 3					
Reading					
Mathematics					
Language					
Science					
Social Science					
Battery					
Grade 4					
Reading					
Mathematics					
Language					
Science					
Social Science					
Battery					
Grade 5					
Reading					
Mathematics					
Language					
Science					
Social Science					
Battery					
Survey Results					
Strengths					
Certificated Staff					
Classified Staff					
Parents					
Students					
Concerns					
Certificated Staff					
Classified Staff					
Parents					
Students					

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